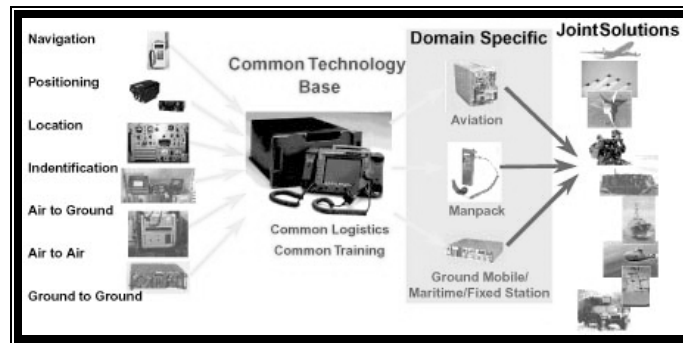# JOINT TACTICAL RADIO SYSTEM (JTRS)

The Joint Tactical Radio System (JTRS) is a family of high-capacity, programmable, multi-band/multi-mode tactical radios to provide both line-of-sight and beyond-line-of-sight communication capabilities to the warfighter. The JTRS uses software defined radio technology to achieve flexibility and interoperability and provide the ability to easily upgrade. The Capstone JTRS program maintains the Software Communications Architecture (SCA) and waveform software using prototype laboratory radios of the Modular Software Radio Consortium. The JTRS radios themselves will be developed and acquired in Service-led acquisition efforts called clusters. The first cluster is an Army-led effort for ground vehicular, Army rotary wing, and Air Force Tactical Air Control Party vehicular radios. Remaining clusters are yet to be fully defined.

BACKGROUND INFORMATION

The Quadrennial Defense Review in 1997 identified the need and benefits of combining various Service radio acquisition programs incorporating programmable software technology. The USD (AT&L) in April 1998 requested that each Service Acquisition Executive aggressively pursue the necessary steps to achieve the goal of minimizing new programs and migrating existing development programs for software-based radio communication systems to a single acquisition program. The JTRS Joint Program Office (JPO) was established to coordinate the program. The importance of the JTRS effort was emphasized in an August 1998 ASD (C3I) memorandum directing that all Service efforts to independently develop and acquire any radio system be held in abeyance. The Joint Requirements Council approved an updated JTRS Operational Requirements Document on March 1, 2001.

The JTRS JPO defined an open SCA for the Services to acquire software-based radios. The SCA is to ensure acquisition efficiency across the Department, foster the use of commercial-off-the-shelf products, and promote interoperability. The JTRS JPO, in conjunction with Service radio acquisition program offices, will acquire waveform software that can be ported to the SCA-compliant JTRS radios during their development. Depending on individual Service requirements, the Service program office will procure SCA-compliant radios in clusters. An acquisition cluster is a group of radios meeting similar requirements in a given timeframe.

Software waveforms developed for Cluster 1 include Single Channel Ground/Airborne Radio System (SINCGARS), Enhanced SINCGARS Improved Product (ESIP), HAVE QUICK II, Ultra High Frequency Demand Assigned Multiple Access (UHF DAMA), High Frequency Single Sideband with Application Link Enabling (HF SSB with ALE), Enhanced Position Location Reporting System

(EPLRS), Link-16, Very High Frequency AM (VHF AM), and Wideband Networking Waveform (WNW). All but the WNW replace legacy waveforms.

TEST & EVALUATION ACTIVITY

The primary test and evaluation activity during FY01 was the definition of test strategies for both the Capstone JTRS and the Army-led JTRS Cluster 1 efforts via the Integrated Product Team (IPT) process. Development of Test and Evaluation Master Plans (TEMPs) and Critical Operational Issues and Criteria were substantial efforts. The TEMPs support a Milestone B acquisition review in FY02.

TEST & EVALUATION ASSESSMENT

A test strategy to support the Army's Cluster 1 acquisition strategy evolved over the past year. The JTRS Cluster 1 is proposing an ambitious acquisition schedule. The proximity of the Milestone C Low Rate Initial Production decision and the IOT&E is of concern. At this early stage in the development, the risk is moderate to high regarding the ability of the Cluster 1 contractors to develop the waveforms and produce sufficient quantities of JTRS Cluster 1 radios to support the complete IOT&E process, including training and development of tactics, techniques, and procedures.

Early involvement through the IPT process has defined Critical Operational Issues and Criteria that are operationally meaningful and measurable for assessing the JTRS contribution to operations. This early cooperation improves the quality of both the system development and test program and provides meaningful assessments for future decisions.